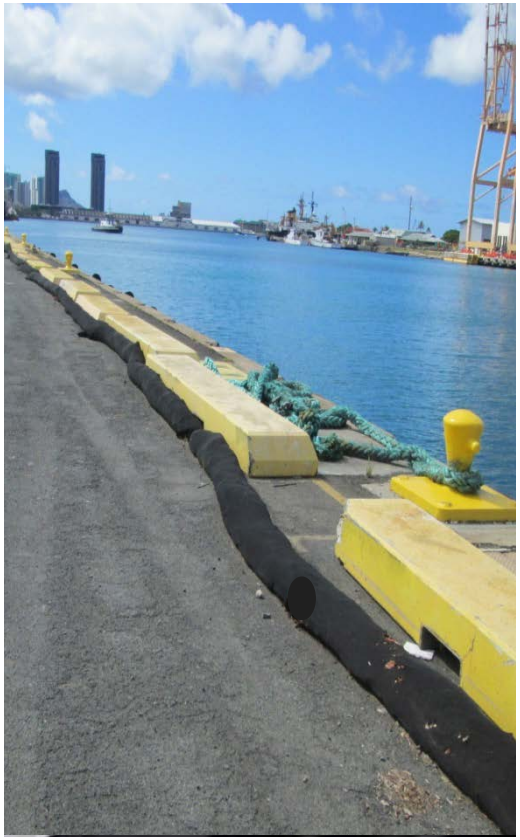
HDOT Harbors Construction and Post-Construction Programs At-a-Glance



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PROTECT OUR HARBOR WATERS

Prelude

- To be good stewards of the environment.
  - For our own use.
  - For the local economy
    (e.g. tourism, fishing).
  - To protect the environment.
    - Coral reefs are sensitive to pollution.
    - Endemic species (found only in Hawaii).




Agenda

- Basic regulatory requirements and definitions.
- HDOT Harbors Project Process
- HDOT Harbors SW BMP Inspections and Common Findings
- HDOT Harbors Post-Construction Program

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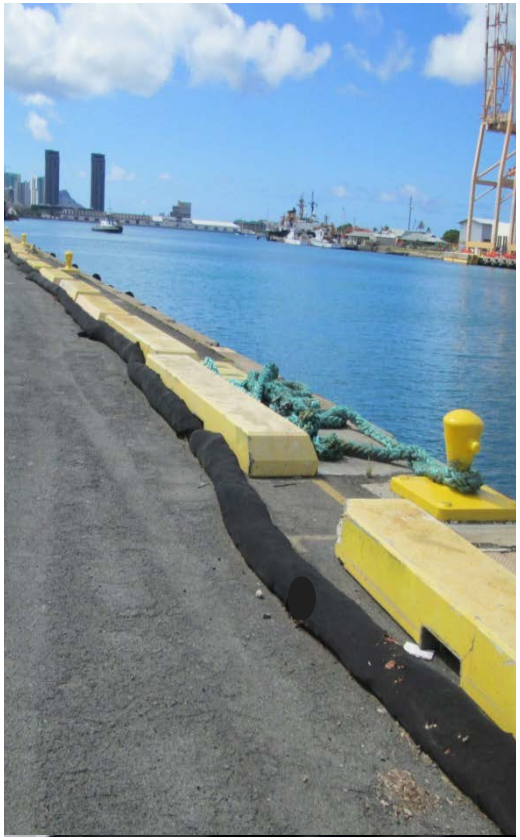
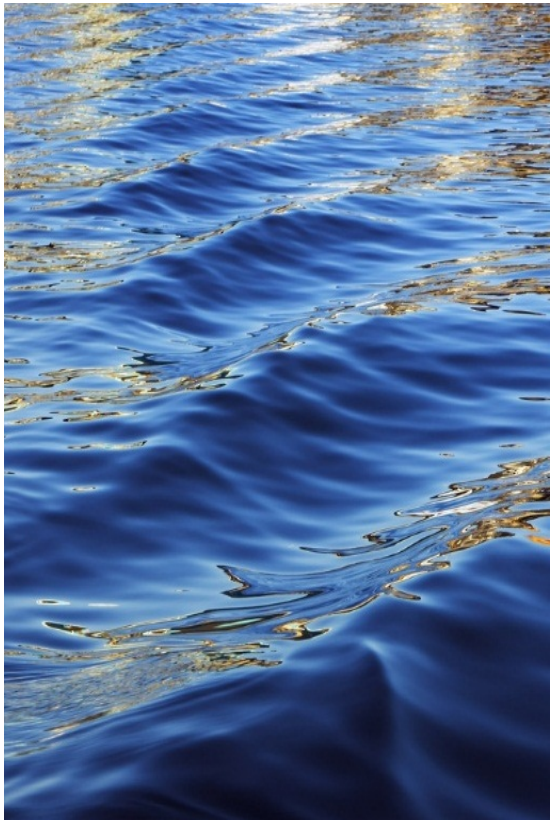


The Basics



Regulatory Background

- **Federal**
  - Clean Water Act
  - Code of Federal Regulations, Title 40, Part 122
- **State of Hawaii, Department of Health**
  - Hawaii Administrative Rules, HAR 11-54 and 11-55
  - Hawaii Revise Statutes, HRS 342 D
- **State of Hawaii, Department of Transportation, Harbors Division**
  - Honolulu Harbor permit no. **HI 03KB482**
  - Kalaeloa Barbers Point Harbor permit no. **HI 03KB488**
  - Kahului Harbor permit no. **HI 14KE674**

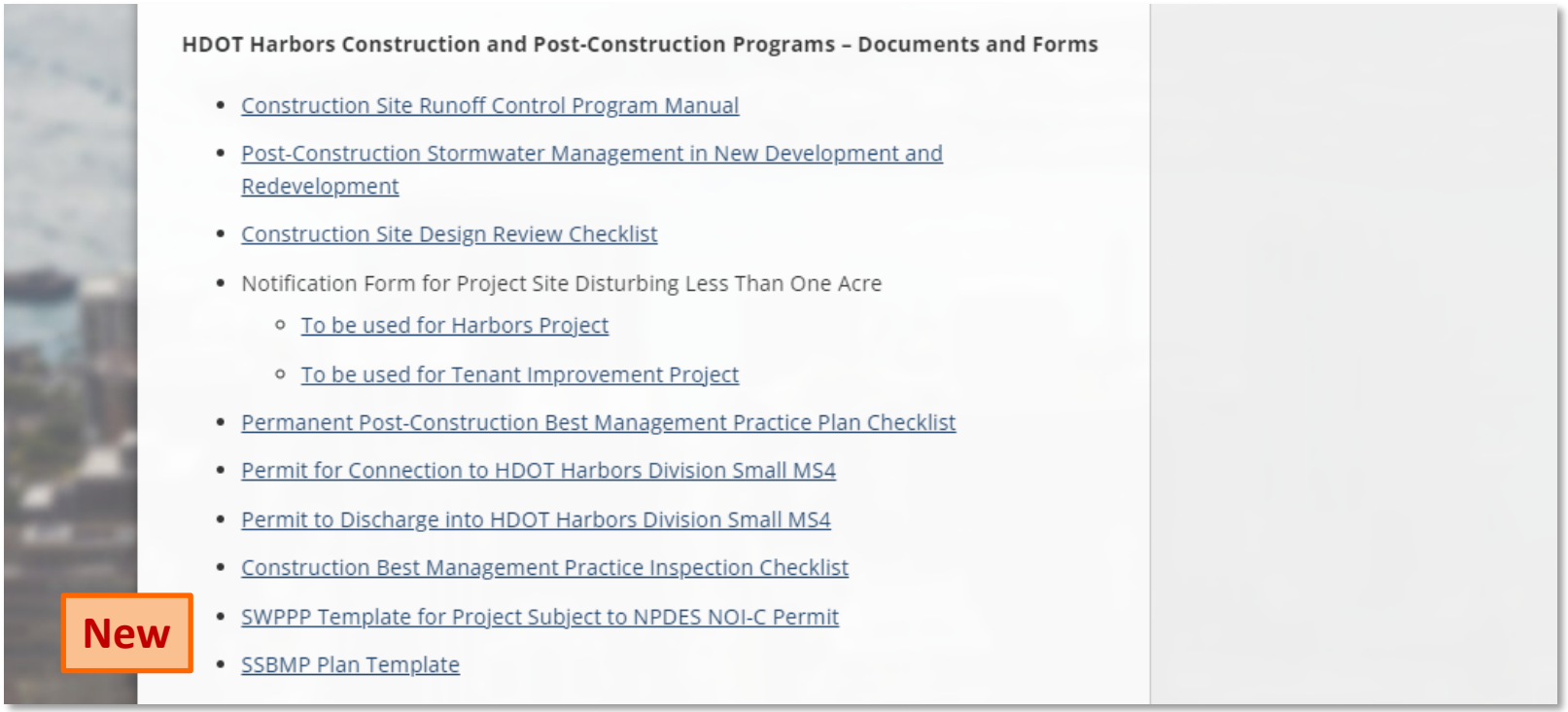
MS4 Permit Requirements

Six minimum **control measures**

- Public Outreach and Education
- Public Involvement and Participation
- Illicit Discharge Detection & Elimination
- **Construction Site Runoff Control**
- **Post-Construction Stormwater Management for New Development and Redevelopment**
- Pollution Prevention / Good Housekeeping.

Harbors Construction and Post-Construction Programs

- Both program manuals are available online at http://hidot.hawaii.gov/harbors/malamaikeawakai/



Stormwater Discharges

- Stormwater can carry pollutants generated during outdoor activities to the nearest storm drains or waterways.
- Stormwater is usually **not** treated before it is discharged to the Municipal Separate Storm Sewer System (MS4) or the adjoining harbors.
- It is vital to control and manage potential source of pollutants **before** they enter the storm drainage system.

Definition of Illicit Discharge

- Non-stormwater discharge that poses a risk to the environment.

Only Rain in the Drain!

Common Pollutants

Vehicle Fluids

Aggregate

Littering

Chemicals

Sediment

Portable Toilet

Washouts

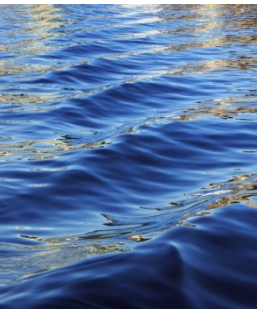
Potential Pollutant: Sediment

- Erosion:
  - Process by which the land surface is worn away by the action of water or wind.

- Sedimentation:
  - Movement and settling out of suspended soil particles.

Construction Impacts to Stormwater

- Increase **flooding**
- **Excessive nutrients** cause algae growth
- Sediment causes waters to become **turbid** which prevents sunlight from reaching vegetation while also **reducing oxygen levels**.



NPDES Construction Program Requirements

- **Submit** a **Notice of Intent (NOI) Form C** and **SWPPP** at least **30** days prior to the start of activities.
- **Notify the HDOH 7** days prior to start.
- **Train** personnel on BMPs.
- Install, inspect, and repair **BMPs** as necessary.
- Update SWPPP and maintain on-site.
- **Submit a Notice of Cessation** when area has been stabilized.

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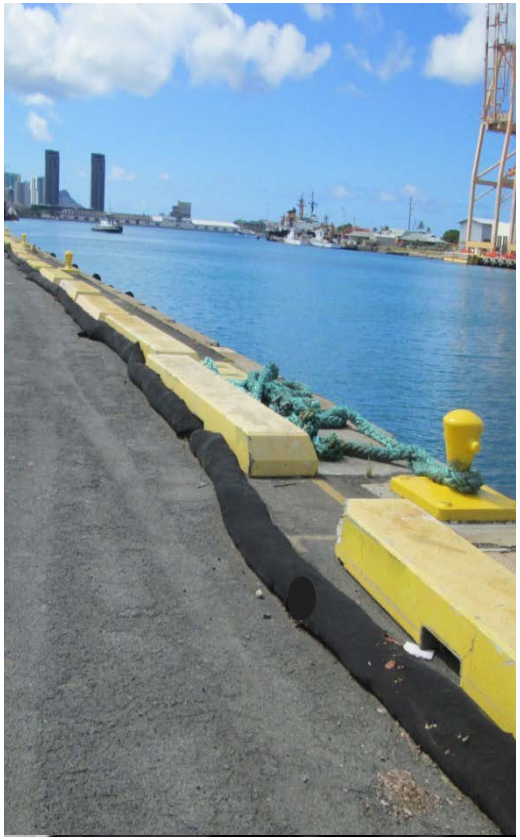
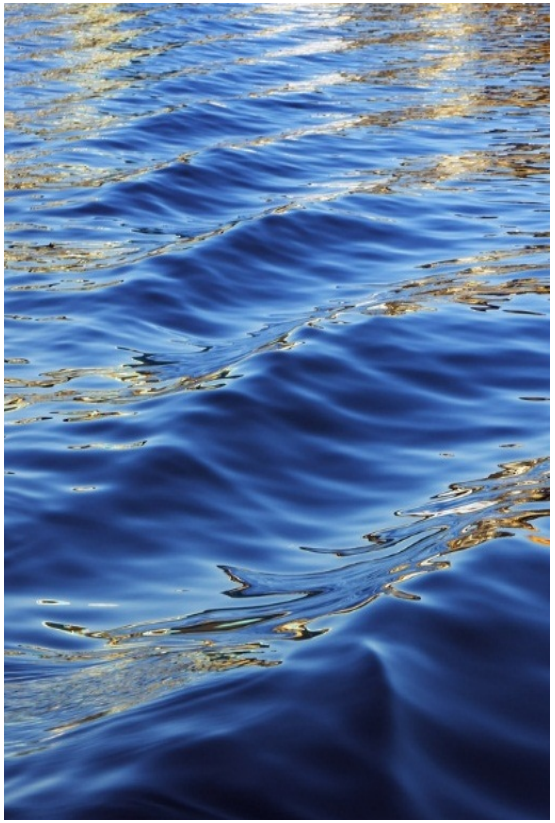
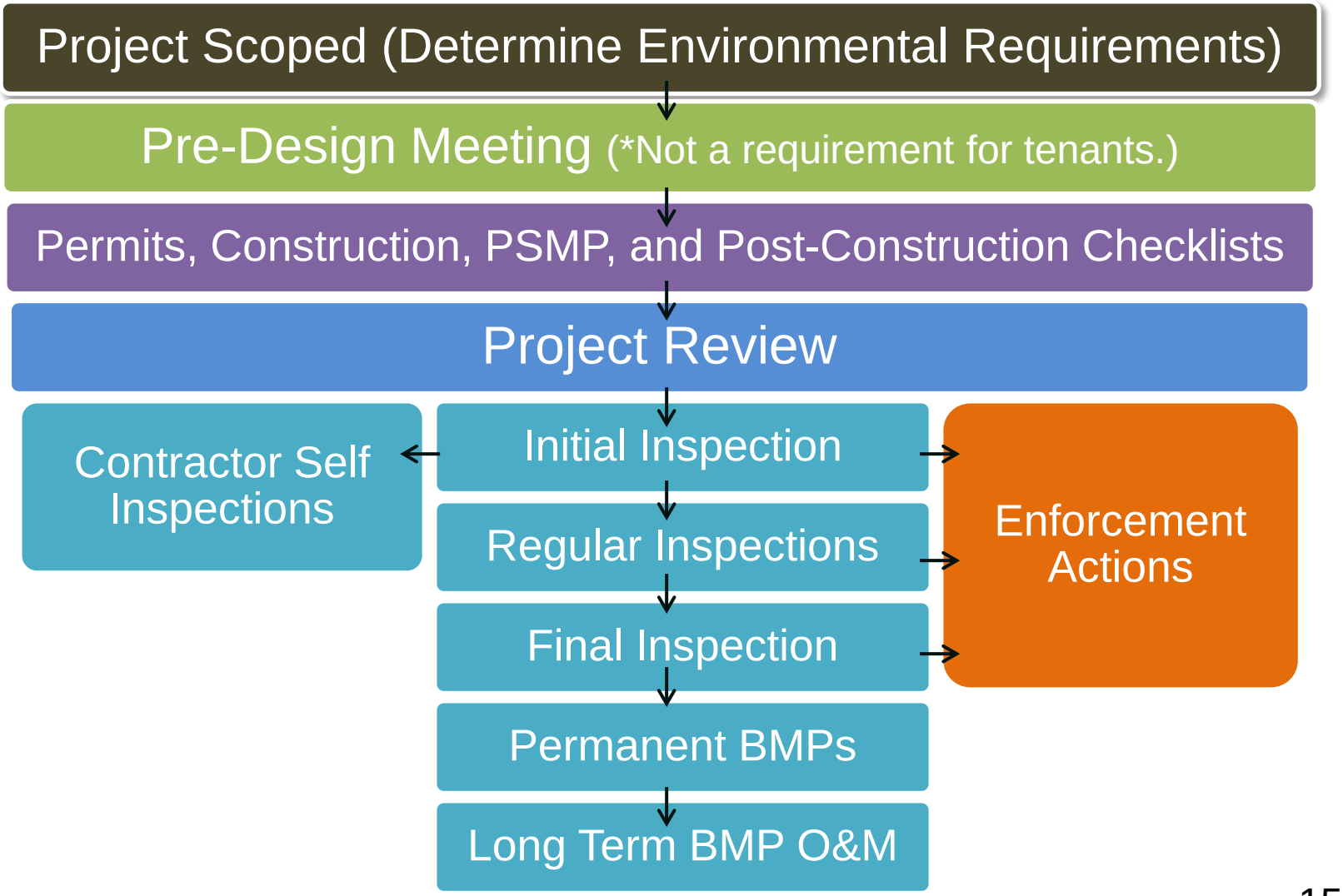


HDOT Harbors Project Process



Harbors Project Process



Design Review

- Pre-Design Meeting.
- Documentation:
  - ***Notification Form for Project Less Than One Acre*** with BMP plan

    OR
  - ***NOI-C: Construction Design Review Checklist***
  - ***Post-Construction BMP Plan Checklist***
  - Completed NPDES applications.
  - **Post-Construction Stormwater Mitigation Plan**

Construction Review

- Project review after contract award and issuance of NTP letter:
  - **Contractor completes SWPPP (or BMP Plan)** and provides to the Harbors Project Manager (PM) or Engineer.
  - **Upon acceptance, Contractors will start the installation of the project-specific BMPs**, prior to the start of any other on-site works.

Construction Best Management Practice

- Practice or device used to mitigate the discharge of potential stormwater pollutants during Construction Phase.

Construction BMP (cont.)

- Use the City and County of Honolulu Stormwater BMP Manual – Construction. When applicable.
- HDOT Highways Construction BMP Manual

Erosion Controls	Scheduling
	Preservation of Existing Vegetation
	Slope Protection
	Run-on Diversion
Sediment Controls	Silt Fence
	Storm Drain Inlet Protection
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Non-Stormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Construction BMP (cont.)

- Roadway Paving or Repair BMPs:

1.	Restrict paving and repaving activity to **exclude periods of rainfall** or predicted rainfall unless required by emergency conditions.
2.	**Install gravel bags and filter fabric** or other equivalent inlet protection at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat.
3.	Prevent the discharge of release agents including soybean oil, other oils, or diesel to the stormwater drainage system or receiving waters.
4.	Minimize non-stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
5.	Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
6.	**Collect liquid waste in a container**, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.

Construction BMPs (cont.)

- Roadway Paving or Repair BMPs:

7.	Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
8.	**Cover the "cold-mix" asphalt** (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
9.	**Cover loads** with tarp before haul-off to a storage site, and do not overload trucks.
10.	**Minimize airborne dust by using water spray or other approved** dust suppressant during grinding.
11.	**Avoid** stockpiling soil, sand, sediment, asphalt material and asphalt grinding materials or rubble **in or near stormwater drainage system or receiving waters**.
12.	Protect stockpiles with a **cover or sediment barriers during a rain**.

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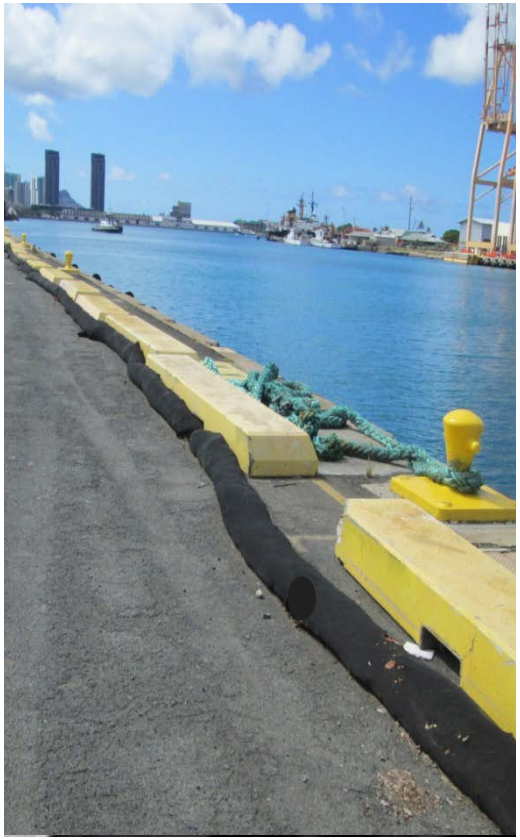
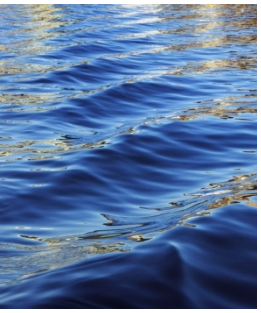


Harbors Stormwater BMP Inspections



Harbors Stormwater BMP Inspections

- **Initial Inspection**:
  - **Verify** all BMPs are installed appropriately.
  - Deficiencies must be corrected **prior to** the start of other construction work.
- **Regular Inspection**:
  - **October to March: Once every two weeks.**
  - **April to September: Once every two months**.
  - Deficiencies must be corrected, or enforcement will commence.
  - Inspector will provide the contractor with report in five (5) calendar days.

Harbors Stormwater BMP Inspections

- **Final Inspection**:
  - When all the following conditions are met:
    - Construction is completed.
    - Exposed soil has been stabilized.
    - Remaining activities have minimal impact on stormwater runoff.
  - Document the conditions are met in the *Additional Notes* portion of the report.
  - Ensure that permanent BMPs are properly installed, if applicable.
  - Deficiencies must be corrected prior to issuance of final payment.

Exempted Projects

- **Minor land disturbance** on a single lot (e.g., minor landscaping activities).
- Post, pole, sign, and fencing installation.
- **Utility repair work**.
- Parking lot, driveway, and **paved surface repair**.
- Other repair and maintenance activities.



Common Inspection Findings

BMP Plan was not available/updated.

The BMP Plan is a living document.

- The plan should be continually updated to reflect current site conditions.
- Changes should be signed by certifying person or duly authorized representative.
- The plan should be readily available to inspectors and workers on site.

Common Inspection Findings

Stabilized construction entrance clogged with fine sediment.

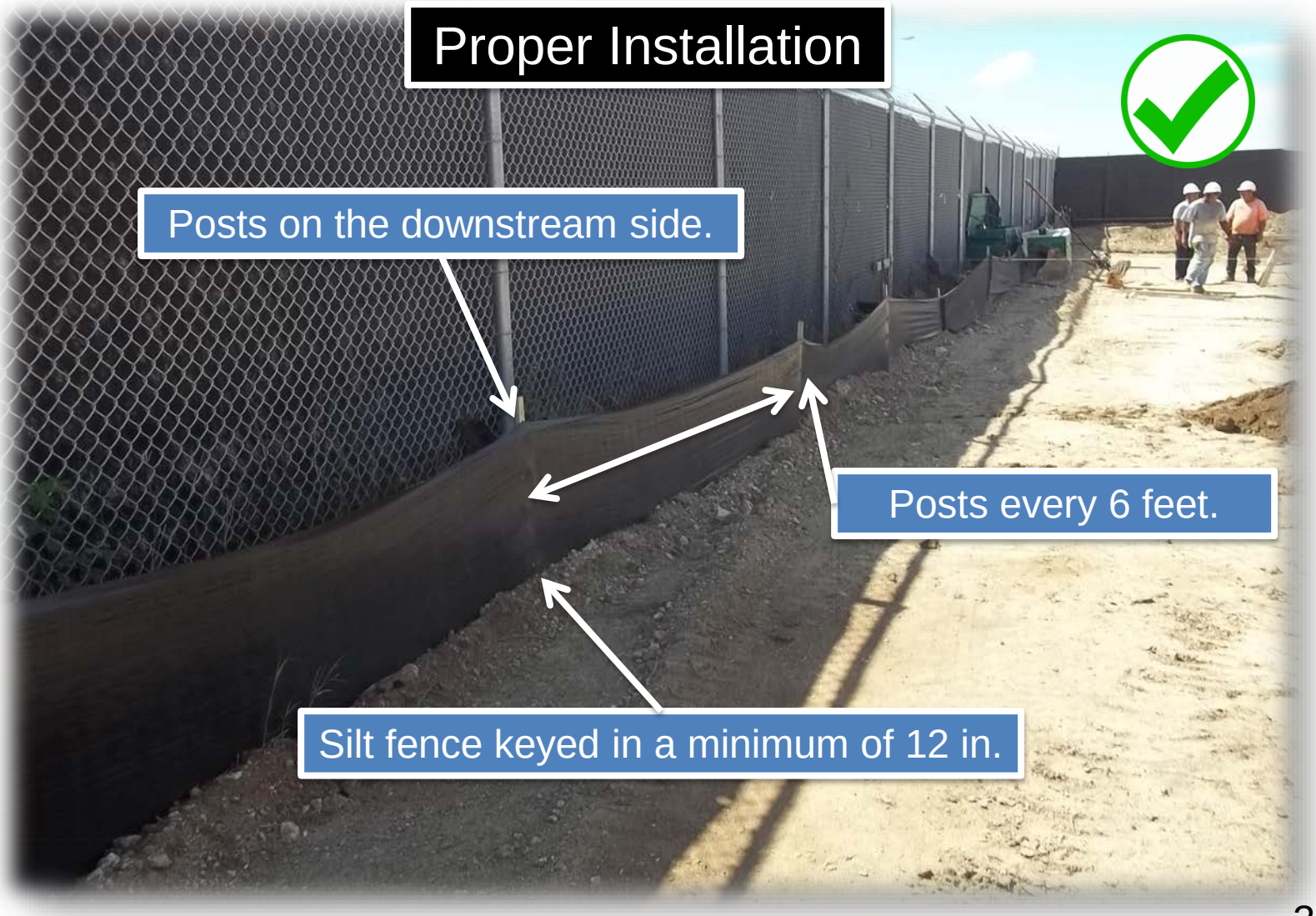
Stabilized Construction Entrance (TR-1)

- Prevents tracking.
  - Grade to prevent runoff.
  - Use **3-6** in diameter stones.
  - **Minimum 12 in** depth.
  - A minimum area of **50 ft length and 30 ft width**.
  - Remove aggregate if it is clogged with sediment.
  - Combine with tire washing and/or street sweeping.

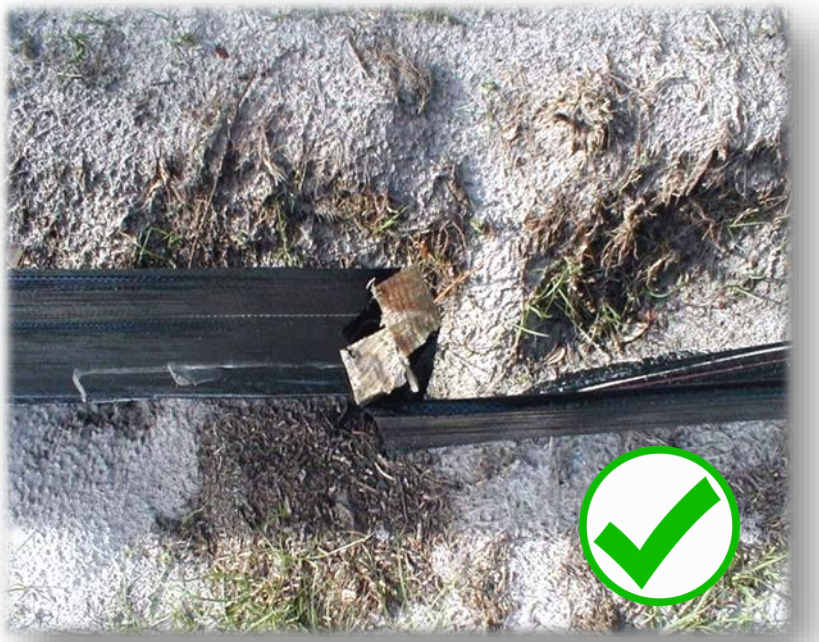
Common Inspection Findings

Silt fence not properly maintained.

Silt Fence (SE-1)



Silt Fence (SE-1)



Join segments by twisting or overlap by 6 inches.

End segments with a J-hook.

Maintenance is required when sediment accumulation is 1/3 the height of the barrier.

Common Inspection Findings

Improper installation / maintenance of perimeter berms.

Common Inspection Findings

Improper installation of erosion control matting.

Common Inspection Findings

Drain inlet protection not properly maintained.

Remove sediment.

Replace torn filter fabric.

Position berms to form a barrier by overlapping them.

SE-10: Maintenance is required when sediment accumulation is 1/3 the height of the barrier.

Common Inspection Findings

Improper management of saw cutting wastes.

Common Inspection Findings

Improper concrete washout.

Kiddy pools degrade quickly due to corrosive wash water.

Cover/dispose when full.

Pits must be lined with a continuous sheet.

Common Inspection Findings

Leaking equipment and lack of spill response.

Spill Kits

- Keep spill kit on-site readily accessible.
- Contents:
  - Absorbent materials.
    - Kitty litter, absorbent pad,

  - PPE such as gloves and goggles.
  - Bag or container for disposal.
  - Non-sparking tools for absorbent removal (broom and plastic dustpan).
- Ensure that spills are properly reported.

Common Inspection Findings

Uncontained stockpiles.

Stockpiles near drainage swales.

Inspection Findings

Improper disposal of paint waste.

Common Inspection Findings

Improper hazardous material management

No Label

No containment

Rusting causes container breach

Common Inspection Findings

Improper solid waste management.

Solid Waste Management (WM-5)

- **Remove debris** from site.
- Place in watertight dumpster.
- **Dispose of dumpster contents regularly**
- Locate dumpster 50 ft **away from waterways**.
- **Segregate** hazardous wastes from the recyclable items.

SWMP Enforcement

- Required when corrective actions are not immediately initiated by contractor.
- Regulations that will be referenced:
  - SWMP.
  - Construction Contract.
  - HRS Title 15, Chapter 266.
  - HAR Title 19, Chapters 41 to 44.

USEPA/HDOH Enforcement

- Administrative Penalties:
  - Class I Violation: Up to $10,000 per violation (maximum $25,000).
  - Class II Violation: Up to $10,000 per day per violation (maximum of $125,000).
- Criminal Penalties:
  - Negligent Violations: Up to $2,500 - $25,000 per day (1 yr prison).
  - Knowing Violation: Up to $5,000 - $50,000 per day (3 yrs prison).
  - Knowing Endangerment: $250,000 (15 yrs prison) for an individual. $1 million or an organization.
- False Statements: $10,000 (6 months prison).

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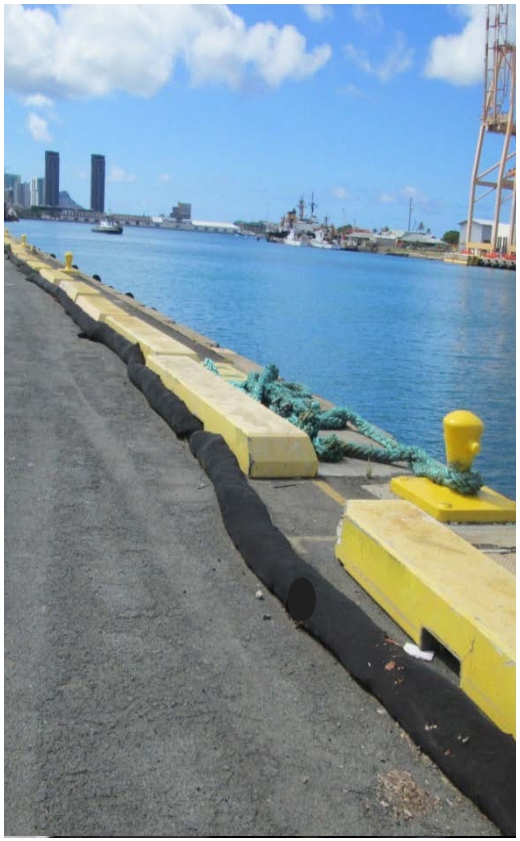
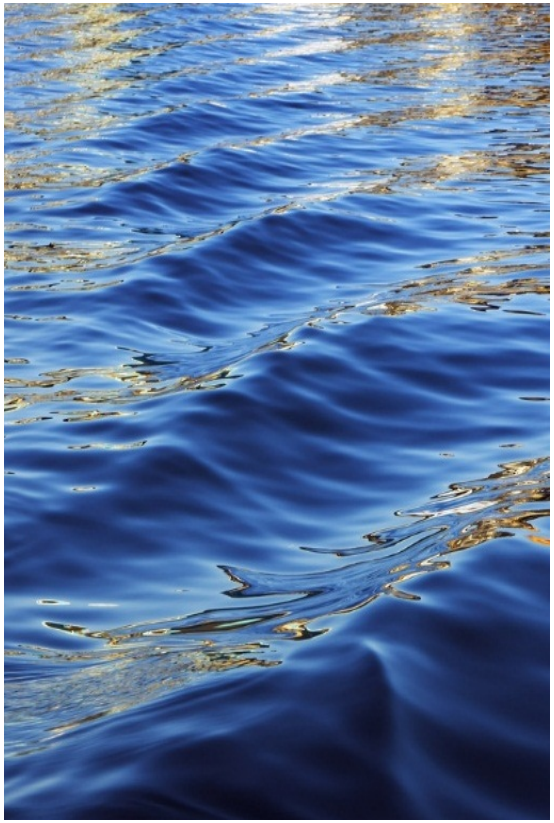
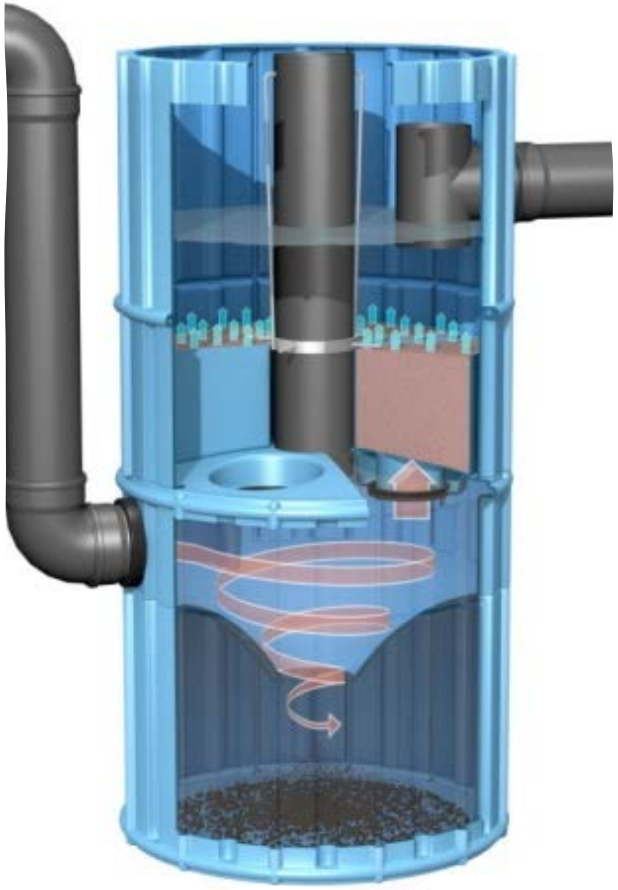


Harbors Post-Construction Program





Post-Construction BMPs

- A BMP that will remain in place following completion of construction to minimize the discharge of pollutants from routine operations on-site.
- Operation and Maintenance Manual/Plan required.

Post-Construction Considerations

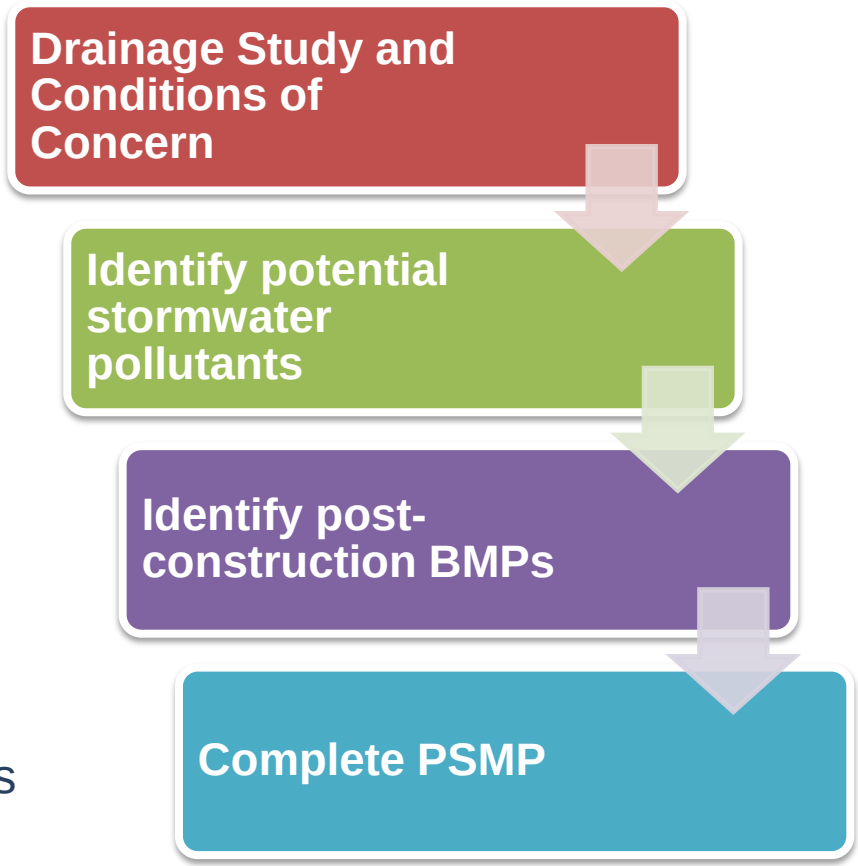
- **Projects of 1 acre or more <u>must</u>** consider the inclusion of post-construction BMPs.
  - Exceptions:
    - Maintenance activities.
    - Reroofing.
    - Interior renovation.
    - Utility work.
    - Replacement of damaged pavement.
- Include in Design Review Submittal:
  - **Post-Construction BMP Plan Checklist**.
  - **P**ost-Construction **S**tormwater **M**itigation **P**lan.

Post-Construction Stormwater Mitigation Plan (PSMP)

Applicable to anticipated activities on the site AFTER construction is completed.

Contents:

- Narrative of project
- Site map
- Description of potential pollutants
- Drainage study and conditions of concern
- Post-Construction BMPs
- Maintenance requirements



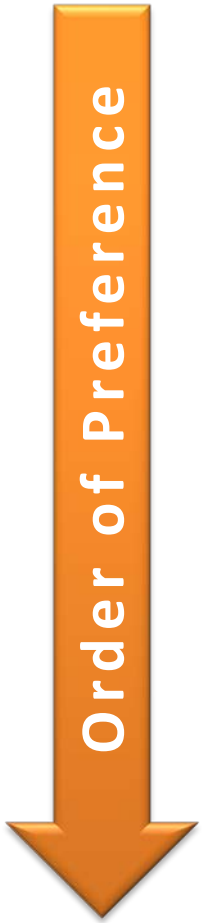
PSMP – Potential Pollutants

Priority Project Categories	General Pollutant Categories								
	Sediment	Trash & Debris	Metals	Organic Compounds	Nutrients	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Commercial Development > 1 acre	P[1]	P	P	P[2]	P[1]	P[5]	P	P[3]	P[5]
(Heavy) Industry Development	P	P	P	P		P	P		
Automotive Repair Shops		P	P	P[4,5]			P		
Restaurants		P				P	P	P	P[1]
Parking Lots	P[1]	P	P		P[1]	P[1]	P		P[1]
Fueling Facility		P	P	P		P	P		
Driveways	P	P	P	P[4]	P[1]	P[5]	P		P[1]

P = potential pollutant.
Refer to Section 3.1

PSMP – BMP Selection

- Select from these categories:
  - **Low Impact Development** (LID)
    - Goal – Keep the stormwater on-site and treat it as a resource instead of a waste.
    - Example – Conserve vegetated areas.
  - **Source Control**
    - Goal – Keep potential pollutants from coming into contact with stormwater runoff.
    - Example – Cover a maintenance area.
  - **Treatment Control**
    - Goal – Remove pollutants from stormwater runoff.
    - Example – Hydrodynamic separators.



PSMP – BMP (cont.)

- Refer to City and County of Honolulu resources.
  - Storm Water BMP Guide (https://www.honolulu.gov/rep/site/dfmswq/dfmswq_docs/SW_BMP_Guide_REVISED_July_2017.pdf)
  - Rules Relating to Storm Drainage Standards. (http://www.cleanwaterhonolulu.com/storm/notices/2013_sds/index.html)
- **Required capacities**:
  - **Volume-based** BMPs must capture **1 or 1.5 inches** of stormwater.
  - **Flow-based** BMPs must capture/treat rainfall intensity of **0.4 inches per hour**.

Common Permanent BMPs

- **Conserve Natural Areas, Soils, and Vegetation**:
  - Conduct construction activities such that disturbance to existing vegetated areas is minimized, in particular trees.
  - Refer to CCH Storm Water BMP Guide, pg 4.

Ideal Implementation:
- In areas where there is existing vegetation

Common Permanent BMPs

- **Vegetated Swale**
  - Broad earthen channel vegetated with erosion resistant and flood tolerant grasses.
  - Runoff is typically conveyed through channel, which allows for infiltration and treatment.
  - Refer to CCH Storm Water BMP Guide.

Ideal Implementation:
- Along streets and parking lots.

Common Permanent BMPs

- **Planter Box**
  - Bioretention treamtment control measures
  - Designed to capture and treat rooftop runoff

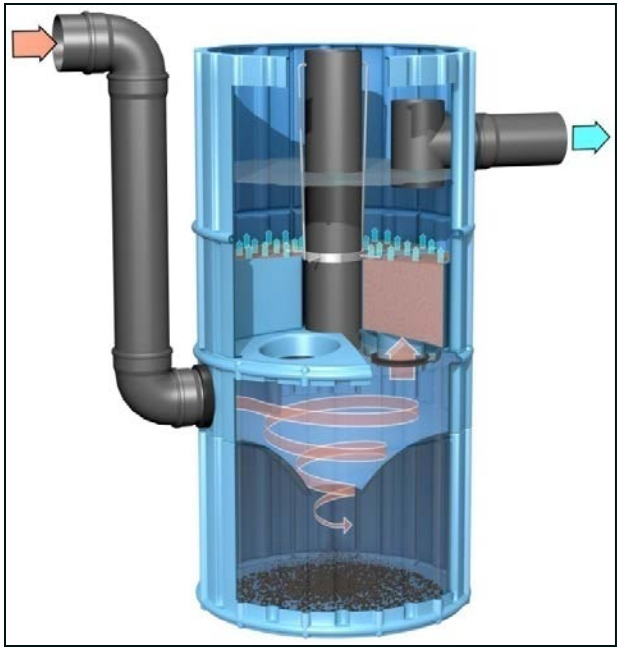
Infiltrating planter box designed to capture and treat rooftop runoff (Plymouth, MA).

Ideal Implementation:
- Along metal shed or warehouse

Common Permanent BMPs

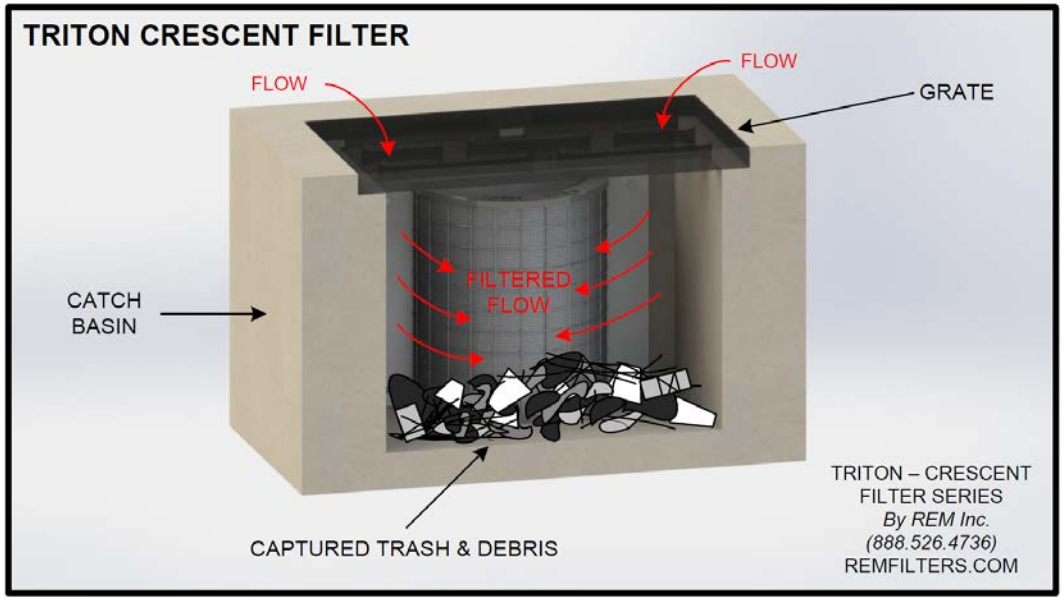
- **Hydrodynamic Separators**
  - Flow through structures with a settling or separation unit to remove sediments and other pollutants.
  - Refer to CCH Storm Water BMP Guide.

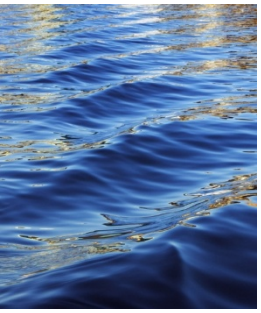
Ideal Implementation:
•Areas where materials to be removed from runoff are heavy particulates – which can be settled – or floatables –which can be captured, rather than solids with poor settleability or dissolved pollutants.



Preferred Permanent BMPs

- **Filter Device**
  - Ideal for areas where littering can be common
  - Can also be fitted with different media to remove targeted pollutants





Take-Away

- **All projects must be reviewed** prior to start.
- Projects over 1 acre must include post-construction BMPs.
- **Inspections are an important tool** to catch problems before they result in regulatory enforcement.
- **Main goal is to ensure that pollutants are not contaminating receiving waters or MS4**.
  - Best if potential pollutants can be kept on-site!
- It is cheaper to implement BMPs than to pay the regulatory fine.
- **Be familiar with construction documents, Harbor's SWMP programs, City and County of Honolulu BMP manual, and Storm Water BMP Guide.**

Questions

- Harbors Website: http://hidot.hawaii.gov/harbors/malamaikeawakai/
- Harbors Contacts:
  - Stormwater Reporting Hotline: 587-1962
  - Environmental Section: Joy Zhang, P.E. 587-1960, ying.j.zhang@hawaii.gov.

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